



# International Photovoltaic Reliability Workshop

## Organizers

### United States:

U.S. Department of Energy (DOE) Solar Energy Technologies Program (SETP)

Asia-Pacific Partnership (APP) PV Reliability Project

National Center for Photovoltaics (NCPV) at the

National Renewable Energy Laboratory (NREL) &

Sandia National Laboratories (SNL)

Underwriters Laboratories (UL)

### China:

Solar Energy Institute of Shanghai Jiao-Tong University (SEI/SJTU)

Suntech Power

China General Certification Center (CGC, Beijing)

China Quality Certification Center (CQC, Beijing)

Wuxi National PV Test Center

## Sponsors

Suntech Power

LDK Solar

Trina Solar

Jolywood (SuZhou)  
Solar Material Technology

December 4–5, 2008

XuJiaHui Campus, HaoZan Building

Shanghai Jiao-Tong University, Shanghai, China

### Workshop Chair

Mr. John Lushetsky, DOE Solar Energy Technologies Program, USA

### Co-Chair

Mr. LiShan Shi, Energy Bureau of NDRC, Beijing, China

### Program Organization Committee

**Co-Chairs:** John Pern (NREL NCPV, USA) and RongQiang Cui (SEI/SJTU, China)

**USA:** Ted James (DOE SETP/Sentech), Sarah Kurtz (NREL, NCPV), Mike Quintana (SNL, NCPV), LiangJun Ji (UL)

**China:** Guangchun Zhang (Suntech Power), YuePeng Wan (LDK Solar), Anthony Chia (Trina Solar), DeRen Yang (Zhejiang University), HaiYan Qin (CGC), Wei Chen (CQC), Yu Xue (Wuxi National PV Test Center), JingXiao Wang (Solarfun), Phoebe Wang (UL)

### Purpose

The solar photovoltaic industry has seen rapid expansion in the past decade with greater acceptance by the public and an ever-increasing share of the electricity-generating capacity for the world. Therefore, it is very important for the emerging PV industry and communities to emphasize the quality and reliability of its products to further secure public trust and thereby avoid premature, irreversible setback if affected by large-scale reliability issues. This workshop serves as the first of two planned activities designed to address these quality and reliability needs, as well as to guard against the unsafe use of PV product imports. Under the stewardship of the Asia-Pacific Partnership (APP) RE Reliability Initiative, DOE SETP and its national laboratories and partners (e.g., UL, Arizona State University, and the DOE Regional Experiment Stations), in collaboration with experts in the participating countries, will provide consultation and training as needed on-site or at NREL/SNL/U.S. partner locations. The goal is to assist PV manufacturers with technical training and to support the establishment and proper operations of qualification test agencies. Any individuals closely involved in PV manufacturing, marketing, installation, application use, and decision making, and concerned with PV product quality and performance reliability, are highly encouraged to participate.

### Technical Subjects

#### I. Module Components and Testing

- Crystalline Si Ingots, Wafers, and Solar Cells
  - Quality Control, Effects of Impurities and Defects
- Cell & Module I-V and QE Measurements
  - Reliable/Accurate Methods and Equipment
- Module Encapsulation Components, Processing, Characterizations, and Accelerated Stress Testing

#### II. Module Design, Fabrication, and Quality Control

- Crystalline Si, Thin-Film PV, (and BIPV)
- Factory-Level Module Fabrication and Quality Assurance
- Module Certification Requirements & Practices
- Field Reliability Experiences
- Module-Level Degradation Analysis

#### III. PV System Performance and Degradation Analysis

- PV System Field Deployment – Technical Aspects and Practices
- DC-AC Inverter and Charging Controller
- On-Grid PV Systems
- Certification Requirements and Standards
- System-Level Performance Reliability, Monitoring, and Field Experiences
- System-Level Degradation Data Analysis

#### IV. PV Trade Issues and Standards

**Registration Fee:** To Be Determined (TBD)

**Capacity:** about 300 attendees

**Registration Web site:** (TBD)

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